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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,257

Applicant(s)

TAKASHIMA ET AL.

Examiner

Hannah Pak

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 03/15/2006 and 02/17/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Four obviousness-types double patenting rejections are set forth below.

Double Patenting I

1. Claims 1-10 and 14-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 4, and 6-13 of copending Application No.10/532,010, hereinafter referred to as "U.S. Appl. '010" (US 2006/0141336). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Both the instant application and the U.S. Appl. '010 claim a composite comprising a thermoplastic resin of the same types and a metal supported in a three-dimensional matrix (Compare claims 1-2 of the instant application with claims 1-2 of the U.S. Appl.

'010). Both also claim a method of manufacturing the same, involving similar steps with the same elements, such as a metal coating made of nickel or copper films (Compare claims 3-10 and 14-18 of the instant application and claims 4 and 6-13 of the U.S. Appl. '010).

Accordingly, one of ordinary skill in the art would have recognized the composite and the method of making the same claimed in the current and co-pending applications are obvious variations of one another.

This is a provisional obviousness-type double patenting rejection.

Double Patenting II

2. Claims 3-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 and 13-14 of U.S. Patent No. 6,306,339.

The instant application and the patent both claim a method involving similar steps with the same elements, such as thermoplastic resin particles and metal film material made of nickel or copper alloys (Compare claims 8-10 and 14-18 of the instant application and claims 5-10 of the patent). The steps claimed in both the application and the patent also include pressure-welding or pressure-molding the particles with the metal to have each other firmly bonded to one another (Compare claims 3-6 of the instant application and claims 1-4 of the patent). Moreover, both the instant application and the patent claim micro-sized particles in which the size of the particles claimed in the instant application embraces those claimed in the patent (Compare claims 7 and 11-13 of the instant application with claims 13-14 of the patent).

Accordingly, one of ordinary skill in the art would have recognized the methods claimed in the current and co-pending applications are obvious variations of one another.

3. Claims 3-18 directed to an invention not patentably distinct from claims 1-10 and 13-14 of commonly assigned U.S. Patent No. 6,306,339. Specifically, please refer to the discussion in paragraph 2 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent 6,306,339, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting III

4. Claims 1-6, 8-10, and 15-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 8 of U.S. Patent No. 6,143,052.

The instant application and the patent both claim a method involving similar steps with the same elements, such as thermoplastic resin particles and metal film material made of nickel or copper alloys (Compare claims 8-10 and 15-18 of the instant application and claims 2-4 of the patent). The steps claimed in both the application and the patent also include pressure-welding or pressure-molding the particles with the metal to have each other firmly bonded to one another (Compare claims 3-6 of the instant application and claims 1-2 and 8 of the patent).

Accordingly, one of ordinary skill in the art would have recognized the methods claimed in the current and co-pending applications are obvious variations of one another.

5. Claims 1-6, 8-10, and 15-18 directed to an invention not patentably distinct from claims 1-4 and 8 of commonly assigned U.S. Patent No. 6,143,052. Specifically, please refer to the discussion in paragraph 4 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent 6,143,052, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the

conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting IV

6. Claims 1-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 4, and 6-8 of U.S. Patent No. 5,874,168 in view of Kiyokawa et al. (US 6,306,339).

The instant application and the patent both claim a composite and a method of making the same involving similar steps with the same elements, such as polytetrafluorethylene (PTFE) particles, and metal film material made of nickel or copper alloys (Compare claims 8-10 and 15-18 of the instant application and claims 2 and 4 of the patent). The steps claimed in both the application and the patent also include covering the surface of the particles through metal plating (Compare claims 3-6 of the instant application and claims 1 and 8 of the patent). Moreover, both the instant application and the patent claim micro-sized particles in which the size of the particles

claimed in the instant application embraces those claimed in the patent (Compare claims 7 and 11-13 of the instant application with claims 6-7 of the patent).

The patent does not specifically mention employing pressure-welding as required by the instant application.

However, Kiyokawa et al. teach pressure-molding (or pressure-welding) the particles with the metal to obtain hydrogen storage materials having large hydrogen occluding capacity and exceptional electric and thermal conductivities (Col. 2, lines 8-12 and Col. 5, lines 20-25).

Given the above teachings, it would have been obvious to one of ordinary skill in the art to employ pressure-molding or pressure-welding the particles with the metals taught by Kiyokawa et al. with a reasonable expectation of successfully obtaining hydrogen storage materials with advantageous electrical and thermal conductivities.

7. Claims 1-18 directed to an invention not patentably distinct from claims 1-2, 4, and 6-8 of commonly assigned U.S. Patent No. 5,874,168. Specifically, please refer to the discussion in paragraph 6 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent 5,874,168, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this

application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kiyokawa et al. (US 6,306,339).

Kiyokawa et al. disclose a method of manufacturing a hydrogen storage material, which corresponds to the claimed metal resin composite (Col. 3, lines 13-16). The method first involves **1)** electrolytic plating baths in a solution for forming a plated film with copper or a copper alloy incorporating therein microgranules of a thermoplastic resin on the surface of hydrogen storage alloy particles (Col. 4, lines 35-45). Any known plating baths, including electroless plating bath, may be also used (Col. 4, lines 45-50). The method of Kiyokawa et al. further involves **2)** pressure-molding (or pressure-welding) of hydrogen storage alloy particles whose surface is plated with the metal film incorporated therein the microgranules of the thermoplastic resin, forming a matrix, at a high temperature (Col. 5, lines 19-30). The resulting matrix has the thermoplastic resin microgranules having a preferable particle diameter of 1-5 μm and hydrogen storage alloy particles (Col. 3, lines 35-40). The plated metal film on top of the matrix is supported by the matrix. The thermoplastic resin microgranules employed include water-repellent fluorocarbon resins, such as a polytetrafluoroethylene (PTFE) resin (Col. 4, lines 50-55). Other micro-sized thermoplastic resins are incorporated in the plated film, including ABS resin, methacrylic resin, polyethylene, polystyrene, polyphenylene ether (PPE) and polyamide as required by claims 10 and 18 (Col. 5, lines 1-19 and Col. 10, lines 13-20). In addition to the copper films, the plated metal film can also include a metal material selected from metals or alloys of Ni, Co, Ni-P, Ni-B, and Co-B (Col. 4, lines 30-35). The hydrogen storage alloy particles have a particle size of preferably 10-100 μm (Col. 3, lines 30-35 and Col. 5, lines 40-45), i.e., encompassed by the ranges recited in claims 7 and 11-13 (0.1-1,000 μm). Moreover, Kiyokawa et al.

disclose that the hydrogen storage material is characterized by uniform distribution of the thermoplastic resin microgranules functioning as a binder in the molded hydrogen storage material since they are contained in the plated metal film disposed on the surface of the hydrogen storage alloy particles (Col. 3, lines 55-60). Such feature facilitates production of a hydrogen storage material having excellent strength and a large hydrogen absorbing capacity (Col. 3, line 60-Col. 4, line 6).

Although Kiyokawa et al. do not specifically mention their thermoplastic resin microgranules are joined together recited in claim 1, there is a reasonable basis to believe that the thermoplastic resin microgranules of Kiyokawa et al. are joined together since they are bonded together with hydrogen storage alloy particles plated with metal films and maintain their particle characteristics, *see MPEP § 2112 [R-3], III and IV*.

In light of the above, it is clear that Kiyokawa et al. anticipate the presently cited claims.

Alternatively, given that hydrogen storage material (corresponding to the claimed metal resin composite) taught by Kiyokawa et al. is identical or substantially identical to that claimed, it would have been also obvious to one of ordinary skill in the art to obtain the presently claimed metal resin composite with desired properties.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hannah Pak whose telephone number is (571) 270-

5456. The examiner can normally be reached on Monday - alternating Fridays (7:30 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hannah Pak
Examiner
Art Unit 1796

/HP/

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796

